

Statement of Purpose

As a child, I had always displayed a keen interest in science. From my love of dinosaurs to my amazement of the way we understand weather, science was all around and I spent much of my time learning about whatever scientific topic I happened to be interested in that day. All of this intensified when I found my preferred subject of focus. I was ten years old and my class spent a week in Huntsville, Alabama's Space Camp. That was the year I fell in love with space. In the year leading up to our trip, we learned about man's endeavor to conquer the skies with flight and the attempt to explore space with the manned space flights around Earth's orbit and to the moon. While at Space Camp, we simulated mock International Space Station missions, a trip to Mars and more. I fell in love with the idea of someday being able to explore the cosmos myself and it was this idea that introduced me to physics.

The next ten years were filled with questions like: How can I reach my goal of exploring Mars? How can I learn more about our solar system? Our Galaxy? Our Universe? How did we get here? Why is the universe the way it is? Why does gravity act this way? How did we learn what we already know about the Universe? I could fill this entire page with questions I've asked over the years, or with the answers I've found so far. My life's goal is to answer as many of my questions as I possibly can. This is why I became a physicist. And the road that has led me to where I am now has been an interesting one, filled with important lessons and answers to questions I hadn't previously considered, the most important being "Is research really what I want to do with my life?"

My first research experience in a University setting was in Biochemistry where I researched the vaporization enthalpies of various NSAIDs (Non-Steroidal Anti-Inflammatory Drugs) which earned me a published article in the Journal of Pharmaceutical Sciences in November of 2011. While my interests do not exactly line up with biochemistry or pharmacy, I found that I really enjoyed the experience and the knowledge I gained from it. The six weeks I spent working at the University of Missouri-St. Louis were some of the most valuable because it was the first time I had a concrete answer to the question of whether or not research was for me.

Since then I have done research at Purdue University in the fields of Dark Matter and Planetary Science. Broadening my research interests from simply wanting to travel into space to wanting to explore space from a knowledge standpoint has led me to an interest in Cosmology and Astrophysics. I am particularly interested in the formation of the Universe and the unification of all of the forces (I feel that, as a Maxwell, I have a duty to continue James Clerk Maxwell's unification of the electric and magnetic forces).

I feel that the study of Cosmology is an important one and my love for all things related to space physics is what drives me to study and explore the cosmos. As Carl Sagan, one of my personal heroes, stated in his *Cosmos* series, "Some part of our being knows this is where we came from. We long to return. And we can. Because the cosmos is also within us. We're made of star-stuff. We are a way for the cosmos to know itself." I would like to be a vessel for the cosmos to discover itself and understand its inner workings. To me, that is the greatest journey on which I could ever hope to travel.